

ABSTRACT OF THE DISCLOSURE

Self-tuning objects for developing programs to be
executed on parallel computers. A trace file reflecting the
sequence of expressions in a user program that include the
self-tuning objects is generated during simulation. The
trace file is divided into trace file blocks such that data
and computational dependencies between trace blocks is
minimized. The trace file blocks are converted into source
code expression blocks, which are each parameterized to
reflect a number of conventional compiler optimization
techniques. Various optimization parameter values are
applied to the expression blocks to generate minimal timing,
compiled versions. The minimal timing compilations of the
expression blocks are linked into the user program and
executed in response to detection of self-tuning object
expressions in the user code. The minimal timing
compilations are then mapped to processors within the target
parallel computer system for execution.

239332